EnSight Release Notes

This document contains release notes which explain modifications and changes between EnSight releases. This document is only useful if you are a current EnSight user and have upgraded to a new version of EnSight. New users need not view these notes.

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Release notes from EnSight 7.1 to EnSight 7.3

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Installation

EnSight 7.3 will install itself under INSTALL_DIRECTORY/ensight73 and will not modify any files previously installed with EnSight 7.0.x, 7.1.x or 7.2.

Licensing

If you have a floating EnSight license (i.e., you run the SLiM license manager), you will need to stop the current SLiM daemon (use slimd_stop) and restart (use slimd_start) using the license manager contained in this release. You do NOT need a new license key - a stop of the old daemon and a restart with the new daemon using your current license key is all that is necessary.

With a floating license, EnSight now checks the expiration date from the license key used by SLiM and ignores the expiration date found locally.

The SLiM administration tools now check for redundant servers and report information from all license servers (all options to slimd_status).

For redundant license servers, EnSight now checks out license tokens from the first available slimd host according to the specified order in the key file (previous versions used alphabetical order).

EnSight no longer gives up it's license token when idle.

EnSight prints the name of the slimd host from which it checked out a token.

Setup Files

Since EnSight 7.0.x, 7.1, 7.2 and 7.3 use the ensight.connect.default file located in your home_directory/ .ensight7, you should make sure that the "executable" line simply refers to "ensight7.server" and does not include a path. If a path is included, the auto-connect will start up the wrong executable which will result in an error message indicating a client/server version mismatch.

To allow different window position files depending on the resolution of the system, EnSight 7.3 now looks for a ensight7.winpos.default_XRES*YRES file, where XRES and YRES is the resolution of the current windowing system. If this file can not be found it will look for ensight7.winpos.default.

GUI Changes

In order to make command files more portable and to clarify the intended operation, the "Binary Files are Native" toggle in the Data Reader Dialog has been changed to set the binary file as little or big endian. The default remains "native" which has the same meaning as before (i.e., when native is set the byte order of the binary file is assumed to be the same as the server machine).

The Prefs pulldown from the main dialog found in 7.0 and 7.1 has been removed and replaced with a Preferences... section under the Edit pulldown.

New and Modified Features

Besides the many bug fixes provided in 7.3, new/modified functionality includes:

Animation	Transparency modifications can now be animated in the keyframe animator.
Annotation	A symbol font, as well as subscript and superscript capability, is now included for annotation purposes.
Boundary Variables	EnSight Gold can now compute the following boundary layer parameters: boundary layer thickness, displacement thickness, momentum thickness, H shape parameter, and skin friction coefficient.
Data Reader	The "Binary Files are Native" switch in the data reader dialog has been changed to directly specify big or little endian binary order. This allows greater flexibility when moving command files between systems of different byte order.
Feature Extraction	EnSight can now compute vortex cores, separation/attachment lines, and shock surfaces/regions.
Environment Variables	The following optional environment variables have been added:

`ENSIGHT7_MAX_CTHREADS`
`ENSIGHT7_MAX_SOSTHREADS`

These variables specify the maximum number of threads to be used for accelerating computation in the client and server-of-servers, respectively. `ENSIGHT7_MAX_THREADS` controls the number of threads for the server.

Note that the number of threads is limited to 2 (for each client or server) for a standard license.

Palette Editor	Ability to save and restore predefined palettes (colors only) by name.
Partial Display	For EnSight Gold, customers can now set the percent of geometry that is displayed during interactive use.
Plots	Log scales are now possible for the x and/or y axis.
Preferences	Nearly every EnSight attribute can now be a preference read at start time. For example, you can set which data format is the default and which timestep to initially load, start-up annotation, etc.
Query	The "Distance" option now includes the ability to query according to the arc length or according to the global coordinate system. The start point for the query can also be modified. In the case of the query of multiple line segments, the line segments can be treated as a single query with continuous incrementing distance, or as a series of independent queries as has been the case in previous versions.

When saving a distance query to a disk file, the X/Y/Z coordinates along the query are also saved.

The line tool has been modified to show direction to aid in the query operation.

Scenario Files | Either a scenario project or a scenario file can be saved.

Tensors | Tensors can now be fully asymmetric.

User Defined Readers | Version 2 of the user defined reader API has been implemented. This new API allows for EnSight Gold type functionality and is significantly faster than the old API. The old API remains supported. Users may mix readers from the 1.0 and 2.0 API's.

Performance

EnSight Gold now allows multiple graphics pipes (IR pipes in a SGI Onyx) to be used to render to a single window or to a powerwall type display.

The ability to handle decomposed datasets has been added for EnSight Gold through the server of servers (ensight7.sos). This new server appears to the client as a regular server. The server of servers (SOS) reads a modified case file in order to start a number of standard servers. The SOS communicates with all of the standard servers and concatenates the results before sending them on to the client. At the present time the SOS performs a subset of the full EnSight functionality.

Further SMP parallel enhancements have been added.

Archives and Command Language

Archives are compatible between 7.1.x, 7.2 and 7.3
Command language is compatible between 7.1.x, 7.2 and 7.3

Structured Part Part Building Improvements

Starting at EnSight 7.3.1(a), structured part building has been extended for the various structured data formats that EnSight supports. The user can now enter values in the From and To fields that are positive (advancing from the min toward the max), zero (represents the max surface for the specified i,j, or k - which can vary per zone), or negative (decreasing from the max towards the min). Additionally, you can now specify ranges for multiple zones. It is also possible to create multiple surfaces at a constant delta within a given zone (such as blade rows in a jet engine). Note that the "delta" option produces an unstructured part instead of a structured one.

Release notes from EnSight 7.0 to EnSight 7.1

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Installation

The Windows version of EnSight now installs with the same directory tree as UNIX, i.e., $ENSIGHT7_HOME/machines/win32.

EnSight 7.1 will install itself under INSTALL_DIRECTORY/ensight71 and will not modify any files previously installed with EnSight 7.0.x.

As archive and command files are compatible between EnSight 7.0.x and 7.1, we recommend that you remove your ensight70 directory and reset your environment variables to use the 7.1 installation.

Environment Variables, Setup Files, and Licenses

It is no longer necessary to specify the ENSIGHT7_READER environment variable. The user defined readers are now automatically read from $ENSIGHT7_HOME/machines/$ENSIGHT7_ARCH/ lib_readers. If you specify the ENSIGHT7_READER environment variable it should now point to a directory (with full path) which contains user defined data readers. The readers in the ENSIGHT7_READER directory will be loaded in addition to the ones located under $ENSIGHT7_HOME/machines/$ENSIGHT7_ARCH/lib_readers. For a complete description of user defined reader behavior, please see the README file located under $ENSIGHT7_HOME/ user_defined_src/readers.

The SLiM license manager for EnSight 7.1 has been modified. In order to run EnSight 7.1 you will need to obtain a new license key. The old SLiM license manager for EnSight 6.x and 7.0.x can co-exist with the new SLiM managing EnSight 7.1, i.e., you can simultaneously run EnSight 6.x/7.0.x with 7.1.x.

Since both EnSight 7.0.x and 7.1 both use the ensight.connect.default file located in your home_directory/ .ensight7, you should make sure that the "executable" line simply refers to "ensight7.server" and does not include a path. If a path is included, the auto-connect will start up the wrong executable which will result in an error message indicating a client/server version mismatch.

GUI Changes

In order to clarify the intended operation, the following buttons have been renamed:

In the Quick interaction dialog for interactive Query:
The EnSight 7.0.x "Action" choice has been changed to "Query"
The EnSight 7.0.x "Action->Surface" has been changed to "Query->Surface Pick"
The EnSight 7.0.x "Action->Point" has been changed to "Query->Cursor"

In the vector arrows dialog:
The EnSight 7.0.x "Type->Rectilean" choice has been changed to "Type->Rectilinear"

New and Modified Features

Besides the many bug fixes provided in 7.1, new/modified functionality includes:

Flipbook   The flipbook will now display images with hidden line and hidden line overlays.

Data Readers   Multiple user defined data readers can now be loaded.

                 You can also set up which readers is the default and which readers are going to be

visible under the "Data Reader->Format" pulldown by setting your preferences under "Prefs->General User Interface->Data Reader Formats".

User Defined Input Device	The behavior of the user defined input device "mouse cursor" has been modified such that the scene is not redrawn each time the input device is moved. The pixels are now simply copied and the input device mouse cursor drawn. The default has also been changed so that the input device is now 2D rather than 3D. You can switch back to the 3D method by issuing a "test: UDID toggle 2D/3D" from the command dialog.
Z-Clip	The Z-Clip dialog has been modified to include a minimum Z value that is used while in floating z clip mode.
Context Files	The context file now outputs keyframe animation information.
Scenario Files	"File->Save" now includes a "Scenario..." option. This option interfaces EnSight to EnLiten - a new CEI product you will hear about in the very near future.

Archives and Command Language

Archives are compatible between 7.0.x and 7.1.0
Command language is compatible between 7.0.x and 7.1.0

Release notes from EnSight 6.x to EnSight 7.0.x

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Installation

Both UNIX and NT now install from the same CD. For UNIX, start the install by "install_unix". For NT, start the install by double clicking Setup.exe as usual.

System Limitations

The maximum part limit has been changed from 2000 to 5000.
The maximum number of cases has been changed from 8 to 16.

Environment Variables, Setup Files, and Licenses

EnSight 7 uses the following environment variables:

ENSIGHT7_ARCH (*)
ENSIGHT7_HOME
ENSIGHT7_INPUT (*)
ENSIGHT7_READER

(*) UNIX only.

EnSight 7 will never look at any ENSIGHT6 environment variable, thus you can easily run EnSight 6.x and EnSight 7.x concurrently.

It is not necessary to specify the ENSIGHT7_READER environment variable. The user defined readers are automatically read from $ENSIGHT7_HOME/machines/$ENSIGHT7_ARCH/lib_readers. If you specify the ENSIGHT7_READER environment variable it should point to a directory (with full path) which contains user defined data readers. The readers in the ENSIGHT7_READER directory will be loaded in addition to the ones located under $ENSIGHT7_HOME/machines/$ENSIGHT7_ARCH/ lib_readers. For a complete description of user defined reader behavior, please see the README file located under $ENSIGHT7_HOME/user_defined_src/readers.

You will need to obtain a new license key file (slim7.key) before you can use EnSight7. As the EnSight7 license manager uses a different socket port number, you may run both EnSight6 and 7 concurrently while you transition to EnSight 7.

If you are running a site with standard and Gold licenses, EnSight 7 has been modified to check out a standard license token if available. If not available it will attempt to check out a Gold license token. Use the -gold start-up parameter to force EnSight to look for a Gold token before standard.

EnSight 7 will create a new directory in your home directory called .ensight7 which will contain preference and macro files for this version of EnSight. EnSight 6 used .ensight6 for this same purpose. You can safely copy all of your files from .ensight6 to .ensight7 and thus have the same environment as you previously enjoyed in EnSight 6 in the new version. The only file which will not be reused is the window default position file (ensight.winpos.default) - you will need to make a new window position file for EnSight 7 by setting the window size/positions and then saving them via Prefs->General User Interface->Save Window Positions. Also, if you copy the contents from .ensight6 to .ensight7, you will need to edit the ensight.connect.default file to start the ensight7.server (the "executable" line).

GUI Changes

Extensive, but evolutionary changes have been made to the EnSight user interface. We believe that none of the changes should be difficult for current users to accept. The changes can be summarized as follows:

Desktop
: The EnSight desktop now contains the Shaded and Hidden Line View mode toggles. The cursor, line, and plane toggles have also been placed on the desktop. An Axis toggle has been added which will turn on/off an axis triad in the lower left corner of each viewport. This axis triad should be used only for direction information as it is not centered at any specific model coordinate.

: The feedback area has been removed from the user interface and replaced by a Info... button which will bring up a dialog with feedback information. The Info... button turns green when information has arrived in the feedback dialog. It turns yellow if a warning has arrived, and pops up automatically if an error has arrived.

Icon Bars
: The icon bars now span a larger portion of the screen and thus will not need to be scrolled at the standard 1280x1024 resolution. When icon bar scrolling becomes necessary simple up/down arrows are used.

: Some of the icons have changed slightly (the most obvious is the subset part icon) and are all slightly smaller. The icons are now using fewer colors and thus enable the detail editor to come up quicker and the entire package to run faster when using a remote display (though this is still not recommended).

: The main feature icon bar contains two rows of icons. You can switch between the rows using the up/down arrows located at the immediate right of the icon bar. The second row of icons contains the icons for profiles, developed surfaces, and tensor glyphs. We have also added a calculator icon to this icon bar which will open the dialog for new variable creation.

: We strongly recommend that each user customize the icon bars to (a) remove any features not used, and (b) reorder the features by importance (see Prefs->General User Interface->Icon Bars...).

Modes
: By default, View and Frame Modes are not shown as choices for the various modes. If you want these modes to be seen, see Prefs->General User Interface which gives you toggles for View and Frame modes. It is our opinion that View mode should no longer be necessary as the functionality is either available on the desktop or from the View pulldown.

Transforms
: +/- XYZ look from points have been added to the desktop. These are in addition to the F5,6,7 keyboard keys that already exist and can be programmed (the XYZ buttons can not be programmed).

Tool Tips
: Tool Tips (balloon help) are by default on. While this is helpful to the novice user, it can become annoying (especially under UNIX where there is no delay for the tool tip pop-up). We strongly recommend that you turn tool tips off via the toggle in the lower right corner of the main window (UNIX only - Windows version use the toggle under Prefs->General User Interface) when it becomes tiresome. The toggle state is saved to a preference file in the .ensight7 directory.

Symmetry
: The visual symmetry labels have been changed to reflect the X, Y, or Z symmetry plane instead of the -1 labels used in EnSight 6.

Legends
: A new simple dialog has been used to turn on/off all desired legends.

Variable List
: The Main Variable list has been removed. Each feature that needs a variable list now has it's own list and will show only the variables applicable to the selected feature.

Data Format	The default data format is now Case.
Color Palettes	The Feature Detail Editor (Variables) dialog now shows two interfaces for manipulating the color palette. The Advanced Interface is identical to the interface in EnSight 6. The added "Simple Interface" gives the user control over the number of levels and the min/max only.
	EnSight 7 adds the ability (on by default) to automatically replace legends when a part becomes colored by a different variable (and the original displayed legend is no longer needed by anything else). The legend will inherit the location and size of the legend it replaces.
Line Tool	The transformation editor now shows the length of the line tool.
Printing	The print dialog has now been split so that the a separate dialog exists for the format. The same format dialog is used for printing, flipbook animation, and the keyframe animation.
Plane Tool	The filled or line option for the plane tool has been moved to Prefs->Tools
Part List	An extended (long) part list can be displayed by Prefs->General User Interface->Large Parts List
Mouse	By default EnSight now uses a three button mouse. The left mouse button is tied to the transformation state, the middle to translate and the right to zoom.
Help Labels	The icon help labels are now off by default. To turn them back on go to Prefs->General User Interface->Icon Bars... and toggle the "Show Help Labels For Mode Icons" toggle at the top of the dialog. Note that if you turn this option on you will induce scrolling in the icon bars - something we've worked hard to eliminate. Tool Tips (balloon help) should eliminate the need for this option.
Hidden Surface	The hidden surface toggles have all been changed to now refer to this function as "shaded"

New and Modified Features

Many new features have been added as well as modifications to several existing features. Details below.

Annotation	Text string annotation can now be tied to a particular viewport.
	Legends can be turned horizontal.
	Legends display attributes get a default attribute list which can be edited.
Clips	A new XYZ box clipper has been added which will clip to an area of interest. You can specify a min and/or max xyz plane, or set them to +/- infinity.
	The part cutting option has now been integrated in with the clip option. To cut parts simply change the "domain" to be inside, outside, or inside/outside.
Context Files	A new option under File->Save is now available called "Context". This option will allow you to easily save the current parts and variables and apply these settings to a different data set. You can think of this as being a archive file that is dataset independent.
Command Dialog	An option has been added to the command dialog to record all part selections by number (the default and the way previous versions of EnSight work) or by name. The new "name" option is useful when editing of the command file is desired.
Cuts	See Clips

Data Readers	Multiple user defined data readers can now be loaded.
	You can also set up which readers is the default and which readers are going to be visible under the Data Reader->Format pulldown by setting your preferences under Prefs->General User Interface->Data Reader Formats.
Delete	All modes now have a Delete icon. You can also delete from each mode by simply pressing the keyboard button while the mouse is in the graphics window area.
Fast	The fast display option has been modified such that Display a toggle turns it on or off and a preference has been added to Prefs->Graphics Window to do either dynamic or static fast display.
Flipbook	Can now output image files using an image or movie file format.
	Is now saved in an archive file for both image and object flipbooks.
	No longer will restore an image flipbook. Image flipbooks should be output to a movie file format and played external to EnSight.
	Can now display with hidden line and hidden line overlays.
Interactive	Added is the ability to use the interactive query Query capability for:
	(a) Point - interactively query the location of the Cursor tool (b) Node - specify a particular node number (c) IJK - specify a particular IJK value (structured) (d) Element - specify a particular element number (e) XYZ - specify a particular location (xyz) in space
	The user interface will now display the distance between query 1 and 2 (but only if two queries are being displayed in the user interface).
Part Names	All part names are now modified to be unique.
Part Symmetry	An option has been added to the part's symmetry options to allow the original (non-symmetric) part display to be toggled off.
Particle Traces	For streamlines the emit time can now be set to the current display time. Previously the particle trace was always computed at the emit time.
	When emitting from a part, a density value can now be specified.
	The traces can now be displayed as a square tube showing rotation similar to the ribbon capability.
Periodic Frames	The periodic match file capability is back.
Plotting	Curves can now be normalized in X and/or Y
Printing	TIFF has been added as a supported image file format.
	AVI has been added as a supported movie file format.
	EnVideo has been added as a supported image/movie file format (more on this format at a later date).
	The flipbook and keyframe animators have now been modified to save images using the new print format dialog.
	File names are now used as prefixes. A file format extension is appended to the file name.
Query	A marker can now be shown (on by default) of where the node query was located, or the distance query begins.

Save Geometry	EnSight Gold file format is always used when saving the EnSight geometry.
	For transient data, you can now save to a single file format file (one file for each variable, but all timesteps in the file). The file will span multiple files if necessary depending on the maximum file size specified.
Select All	A Select All icon has been added for all of the modes.
Standard/Gold	Standard EnSight is now allowed to:
	(a) Read EnSight Gold files (b) Perform isovolume calculations
	Gold now has a option under Prefs->Performance to set the point resolution for bounding box point display.
	Gold gets more parallelization on the EnSight server.
Startup	A "-case filename" option has been added to the start up line. This option will start EnSight and read the given case file. The part loader dialog will then appear.
Time	EnSight 7 has the capability to track variables (from the same or different cases) on different timelines. The solution time dialog has now added a Timeset Details... button to bring up a dialog showing each of the defined timelines and how they behave when a timestep does not exist.
User Defined Input Device	The behavior of the user defined input device "mouse cursor" has been modified such that the scene is not redrawn each time the input device is moved. The pixels are now simply copied and the input device mouse cursor drawn. The default has also been changed so that the input device is now 2D rather than 3D. You can switch back to the 3D method by issuing a "test: UDID toggle 2D/3D" from the command dialog.
Variables	Many new calculator functions have been added. Perhaps most interesting is a new function that allows you to map a variable from one case to another.
	For new variable calculations that result in an error at any location, the value is set to Undefined. Previous versions would return an error and would not compute the variable.
	Tensors have been added as a new variable type. Symmetric or anti-symmetric tensors are supported. A number of new variable functions have been added for the new variable type as well as a new part type to display tensor glyphs.
	Complex scalar and vector variables have been added as new variable types. A number of new variable functions have been added for the new variable type.
	A variable can now be defined at only given parts and/or nodes/elements.
	The Surface Normal calculator function now returns values on a per element basis instead of the previous per node.
Vector Arrows	A density function has been added to cull the total number of arrows.
Viewports	You can now select from several standard viewport layouts.
	Viewport 0 can now be moved and resized, but not pushed or popped.
	Viewports can be assigned to be 2D. 2D viewports will show only planar parts lying in the same plane. Transformations are limited to 2D in these special viewports.
	Two new options are available from the Edit->Part pulldown to create and assign selected parts to a single or multiple viewports.

Z-Clip	The front and back z clip planes now "float" with the transformations. The toggle is in the z-clip dialog and is on (float) by default. This should keep the front and back planes out of the way at all times, though it may be necessary at times to manually adjust them. While in "float" mode, the minimum z value can be set. This may be necessary on some machines as the default minimum z value (1.e-4) can cause poor shaded image quality.

Archives and Command Language

Archives are not compatible between 6.x and 7.1

Command language is generally compatible between 6.x and 7.1